

Application No.: 09/746,602
Amendment Under 37 C.F.R. §1.111 dated May 26, 2004
Response to the Office Action of February 27, 2004

Listing of Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

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Claim 1 (Original): An information processing device comprising a plurality of communication units each having a wireless transceiver, and a monitoring and controlling unit for monitoring and controlling said communication units, wherein said monitoring and controlling unit, when at least one of said plurality of communication units maintains a connection, iteratively monitors a communication state of at least another one of said plurality of communication units, and adjusts a communication condition of the wireless transceiver of said one communication unit in accordance with the communication state of the monitored other communication unit.

Claim 2 (Original): The information processing device according to Claim 1 wherein, when there is a connection request for connection to said other communication unit or when said other communication unit maintains a connection, said monitoring and controlling unit changes the transmission power level of said wireless transceiver of said one, connected communication unit to a lower level so that a RF signal transmitted from the wireless transceiver of said one communication unit may not substantially interfere with the reception of a RF signal by the wireless transceiver of said other communication unit.

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Claim 3 (Original): The information processing device according to Claim 1 wherein, when a signal quality of a RF signal received by the transceiver of said other communication unit is below an allowable level, said monitoring and controlling unit changes the transmission power level of said wireless transceiver of said one, connected communication unit to a lower level so that a RF signal transmitted from the wireless transceiver of said one communication unit may not substantially interfere with reception of a RF signal by the wireless transceiver of said other communication unit.

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Claim 4 (Original): The information processing device according to Claim 1 wherein said monitoring and controlling unit iteratively monitors a current state of said other communication unit relating to a connection thereof or a state of said other communication unit relating to a connection thereof expected to occur within a short time period.

Claim 5 (Original): The information processing device according to Claim 1 wherein said monitoring and controlling unit iteratively monitors a signal quality of a RF signal received at the transceiver of said other communication unit.

Claim 6 (Original): The information processing device according to Claim 1 wherein said monitoring and controlling unit, when adjusting the transmission condition of the wireless transceiver of said one, connected communication unit, causes another information processing device with which said information processing device is communicating through said one

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communication unit, to adjust a transmission condition of a wireless transceiver of a communication unit of said another information processing device, too.

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Claim 7 (Original): The information processing device according to Claim 1 wherein said monitoring and controlling unit further monitors reception power of a signal received by the transceiver of said one, connected communication unit, and the transmission condition of the transceiver of said one, connected communication unit is controlled also in accordance with the monitored reception power and with an application activated for data transfer via said one communication unit or device data of another information processing device with which said information processing device is communicating.

Claim 8 (Original): The information processing device according to Claim 1 wherein said monitoring and controlling unit further monitors signal quality of a signal received by the transceiver of said one, connected communication unit, and the transmission condition of the wireless transceiver of said one, connected communication unit is controlled further in accordance with the monitored signal quality at said one communication unit.

Claim 9 (Original): The information processing device according to Claim 1 wherein the transmission condition of the wireless transceiver of said one, connected communication unit is controlled also in accordance with a state of a RF signal received at a communication unit of another information processing device with which said one, connected communication unit is communicating.

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Claim 10 (Original): The information processing device according to Claim 1 wherein said plurality of communication units are formed in built-in or detachable modules.

Claim 11 (Currently Amended): The information processing device according to Claim 1 wherein said plurality of communication units conform with at least one of the Bluetooth standard, the wireless LAN standard ~~and/or~~ and the mobile communication network mobile station standard.

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Claim 12 (Original): An information processing device comprising first and second communication units each having a wireless transceiver, and a monitoring and controlling unit for monitoring and controlling said first and second communication units;

said monitoring and controlling unit iteratively monitoring communication states of said first and second communication when said first communication unit maintains a connection, said monitoring and controlling unit adjusting a transmission condition of the wireless transceiver of said first communication unit in accordance with the monitored communication states of said first and second communication units, and with an application activated in relation to the connection of said first communication unit or device data of another information processing device with which said information processing device is communicating through said first communication unit.

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Claim 13 (Original): The information processing device according to Claim 12 wherein, when there is a connection request for connection to said second communication unit, or when said second communication unit maintains a connection, said monitoring and controlling unit lowers transmission power of the wireless transceiver of said first communication unit so that a RF signal transmitted by said first communication unit may not substantially interfere with reception of a RF signal by the wireless transceiver of said second communication unit.

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Claim 14 (Original): The information processing device according to Claim 12 wherein, when signal quality of a signal received at the wireless transceiver of said second communication unit is below an allowable level, said monitoring and controlling unit lowers transmission power of the wireless transceiver of said first communication unit so that a RF signal transmitted by said first communication unit may not substantially interfere with reception of a RF signal by the wireless transceiver of said second communication unit.

Claim 15 (Original): The information processing device according to Claim 12 wherein said device data is sent on a RF signal from a wireless transceiver of a communication unit of said another information processing device to the wireless transceiver of said first communication unit, and is supplied to said monitoring and controlling unit from said first communication unit.

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Claim 16 (Original): The information processing device according to Claim 12 wherein, when said second communication unit maintains a connection, said monitoring and controlling unit iteratively monitors the communication states of said first and second communication units, and adjusts a transmission condition of the wireless transceiver of said second communication unit in accordance with the communication states of said first and second communication units, and with an application activated in relation to the connection of said second communication unit or device data of another information processing device.

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Claim 17 (Currently Amended): The information processing device according to Claim 12 wherein the communication state of said first communication unit to be monitored is at least one of transmission power of the wireless transceiver of said first communication unit ~~and/or~~ and a signal state of a RF signal as received at the wireless transceiver of said first communication unit.

Claim 18 (Original): The information processing device according to Claim 12 wherein the communication state of said first communication unit to be monitored is a signal state of a RF signal transmitted by the wireless transceiver of said first communication unit as received by a wireless transceiver of a communication unit of said another information processing device.

Claim 19 (Original): The information processing device according to Claim 12 wherein said monitoring and controlling unit, when adjusting the transmission condition of the wireless transceiver of said first communication unit, causes said another information processing device

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to adjust a transmission condition of a wireless transceiver of a communication unit of said another information processing device, too.

Claim 20 (Original): The information processing device according to Claim 12 wherein a RF signal transmitted by the wireless transceiver of said first communication unit tends to more strongly interfere with a RF signal reception of the transceiver of said second communication unit than a RF signal transmitted by the wireless transceiver of said second communication unit does with a RF signal reception of the transceiver of said first communication unit.

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Claim 21 (Original): The information processing device according to Claim 12 wherein said first and second communication units are formed in built-in modules or detachable modules.

Claim 22 (Original): The information processing device according to Claim 12 wherein said first communication unit conforms with the Bluetooth standard or the wireless LAN standard, and said second communication unit conforms with the mobile communication network mobile unit standard, the wireless LAN standard or the Bluetooth standard.

Claim 23 (Original): An information processing device comprising at least one communication unit having a wireless transceiver, and a monitoring and controlling unit for monitoring and controlling said one communication unit, wherein, when said one communication unit establishes or maintains a connection, said monitoring and controlling unit adjusts a transmission condition of the wireless transceiver of said one communication unit in

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accordance with an application activated in relation to the connection of said one communication unit or device data of another information processing device with which said first information processing device is communicating through said one communication unit.

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Claim 24 (Original): The information processing device according to Claim 23 wherein said monitoring and controlling unit, when adjusting the transmission condition of the wireless transceiver of said one communication unit, causes another information processing device to adjust a transmission condition of a wireless transceiver of a communication unit of said another information processing device, too.

Claim 25 (Original): An information processing device comprising at least one communication unit having a wireless transceiver, and a monitoring and controlling unit for monitoring and controlling said one communication unit, wherein, when said one communication unit maintains a connection, said monitoring and controlling unit iteratively monitors a communication state of said one communication unit, and adjusts a transmission condition of the wireless transceiver of said one communication unit in accordance with said monitored communication state, and with an application activated in relation to the connection of said one communication unit or device data of another information processing device with which said information processing device is communicating through said one communication unit.

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Claim 26 (Currently Amended): The information processing device according to Claim 25 wherein the communication state of said one communication unit to be monitored is at least one of transmission power of the wireless transceiver of said one communication unit ~~and/or~~ and a signal state of a RF signal as received at said wireless transceiver of said one communication unit.

Claim 27 (Original): The information processing device according to Claim 25 wherein said monitoring and controlling unit, when adjusting the transmission condition of the wireless transceiver of said one communication unit, causes another information processing device to adjust a transmission condition of a wireless transceiver of a communication unit of said another information processing device, too.

Claim 28 (Original): The information processing device according to Claim 25 wherein the communication state of said one communication unit to be monitored is a signal state of a RF signal transmitted from the wireless transceiver of said one communication unit as received at a wireless transceiver of a communication unit of said another information processing device.

Claim 29 (Original): The information processing device according to Claim 25 wherein said device data is transmitted on a RF signal from a wireless transceiver of a communication unit of said another information processing device to the wireless transceiver of said one communication unit, and is supplied to said monitoring and controlling unit from said one communication unit.

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Claim 30 (Original): The information processing device according to Claim 25 wherein said communication unit conforms with the Bluetooth standard or the wireless LAN standard.

Claim 31 (Original): The information processing device according to Claim 25 wherein said communication units are formed in built-in modules or detachable modules.

Claim 32 (Original): The information processing device according to Claim 25 wherein said transmission condition is transmission power, a transmitter amplifier gain, an amount of attenuation provided by an attenuator, an antenna gain or an antenna direction.

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Claim 33 (Original): A program stored in a recording medium for monitoring and controlling communications of an information processing device, said information processing device including a plurality of communication units each having a wireless transceiver, and a processor, said program causing said processor to perform the steps of:

when at least one of said plurality of communication units maintains a connection, iteratively monitoring a communication state of at least another of said plurality of communication units; and

adjusting a transmission condition of the wireless transceiver of said one communication unit in accordance with the monitored communication state of said another communication unit.

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Claim 34 (Original): The program according to Claim 33 wherein said adjusting step includes a step of lowering transmission power of the wireless transceiver of said one, connected communication unit when there is a connection request for connection to said another communication unit or when said another communication unit maintains a connection, whereby a RF signal transmitted from the wireless transceiver of said one communication unit is substantially prevented from interfering with reception of a RF signal by the wireless transceiver of said another communication unit.

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Claim 35 (Original): The program according to Claim 33 wherein said adjusting step includes a step of lowering transmission power of the wireless transceiver of said one, connected communication unit, when a signal quality of a RF signal received by the transceiver of said another communication unit is below an allowable level, whereby a RF signal transmitted from the wireless transceiver of said one communication unit is substantially prevented from interfering with reception of a RF signal by the wireless transceiver of said another communication unit.

Claim 36 (Original): The program according to Claim 33 wherein said monitoring step includes a step of iteratively monitoring a current state of said another communication unit relating to a connection thereof or a state of said another communication unit relating to a connection thereof predicted to occur within a short time period.

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Claim 37 (Original): The program according to Claim 33 wherein said monitoring step is a step of iteratively monitoring, signal quality of a signal received at the wireless transceiver of said another communication unit.

Claim 38 (Original): The program according to Claim 33 wherein said program effecting said processor to perform a further step of:

causing another information processing device which is communicating with said information processing device through said one communication unit to adjust a transmission condition of a wireless transceiver of a communication unit of said another information processing device when a transmission condition of the wireless transceiver of said one communication unit is adjusted.

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Claim 39 (Original): The program according to Claim 33 wherein, in said adjusting step, the transmission condition of the transceiver of said one, connected communication unit is adjusted also in accordance with signal quality of a signal received at a transceiver of a communication unit of said another information processing device.

Claim 40 (Original): The program according to Claim 33 wherein, in said monitoring step, reception power of a signal as received by the transceiver of said one, connected communication unit is further monitored, and, in said adjusting step, the transmission condition of the transceiver of said one, connected communication unit is controlled also in accordance with the monitored reception power and an application activated for data transfer via said one communication unit or

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device data of another information processing device with which said information processing device is communicating.

Claim 41 (Original): The program according to Claim 33 wherein, in said monitoring step, signal quality of a signal received by the transceiver of said one, connected communication unit, and, in said adjusting step, the transmission condition of the wireless transceiver of said one, connected communication unit is controlled also in accordance with the monitored signal quality at said one communication unit.

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Cont. Claim 42 (Original): A program stored in a recording medium for monitoring and controlling communications of an information processing device, said information processing device comprising first and second communication units each having a wireless transceiver, and a processor, said program causing said processor to perform the steps of;

iteratively monitoring communication states of said first and second communication units when said first communication unit maintains a connection; and

adjusting a transmission condition of the wireless transceiver of said first communication unit in accordance with the monitored communication states of said first and second communication units, and with an application activated in relation to the connection of said first communication unit or device data of another information processing device with which said information processing device is communicating through said first communication unit.

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Claim 43 (Original): The program according to Claim 42 wherein said adjusting step including a step of lowering transmission power of the wireless transceiver of said first communication unit, when there is a connection request for connection to said second communication unit, or when said second communication unit maintains a connection, whereby a RF signal transmitted by said first communication unit is substantially prevented from interfering with reception of a RF signal by the wireless transceiver of said second communication unit.

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Cont. Claim 44 (Original): The program to Claim 42 wherein, when signal quality of a signal received at the wireless transceiver of said second communication unit is below an allowable level, transmission power of the wireless transceiver of said first communication unit is lowered in said adjusting step to substantially prevent a RF signal transmitted by said first communication unit from interfering with reception of a RF signal by the wireless transceiver of said second communication unit.

Claim 45 (Original): The program according to Claim 42 wherein said device data is sent on a RF signal from a wireless transceiver of a communication unit of said another information processing device to the wireless transceiver of said first communication unit, and is supplied to said processor from said first communication unit.

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Claim 46 (Original): The program according to Claim 42, said program causing said processor to perform a further step of:

monitoring communication states of said first and second communication units iteratively when said second communication unit maintains a connection; and

adjusting a transmission condition of the wireless transceiver of said second communication unit in accordance with the monitored communication states of said first and second communication units, and an application activated in relation to the connection of said second communication unit or device data of said another information processing device.

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Claim 47 (Currently Amended): The program according to Claim 42 wherein the communication state of said first communication unit to be monitored is at least one of transmission power of the wireless transceiver of said first communication unit ~~and/or~~ and a signal state of a RF signal as received at the wireless transceiver of said first communication unit.

Claim 48 (Original): The program according to Claim 42 wherein the communication state of said first communication unit to be monitored is a signal state of a RF signal transmitted by the wireless transceiver of said first communication unit as received by a wireless transceiver of a communication unit of said another information processing device.

Claim 49 (Original): The program according to Claim 42 wherein said program causes said processor to perform a further step of causing said another information processing device to adjust a transmission condition of a wireless transceiver of a communication unit of said another

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information processing device, when the transmission condition of the wireless transceiver of said first communication unit is adjusted.

Claim 50 (Original): The program according to Claim 42 wherein said first communication unit performs a communication procedure according to the Bluetooth protocol or wireless LAN protocol, and said second communication unit performs a communication procedure according to a mobile communication network protocol, a wireless LAN protocol or the Bluetooth protocol.

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Claim 51 (Original): A program stored in a recording medium for monitoring and controlling communications of an information processing device, said information processing device including at least one communication unit having a wireless transceiver, and a processor, said program causing said processor to perform the steps of:

when said one communication unit establishes or maintains a connection, adjusting a transmission condition of the wireless transceiver of said one communication unit in accordance with an application activated in relation to the connection of said one communication unit, or device data of another information processing device with which said first information processing device is communicating through said one communication unit.

Claim 52 (Original): The program according to Claim 51 wherein said program causes said processor to perform a further step of causing said another information processing device to adjust a transmission state of a transceiver of a communication unit of said another information

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processing device when the transmission condition of the transceiver of said one communication unit is adjusted.

Claim 53 (Original): A program stored in a recording medium for monitoring and controlling communications of an information processing device, said information processing device comprising at least one communication unit having a wireless transceiver, and a processor, said program causing said processor to perform the steps of:

iteratively monitoring a communication state of said one communication unit when said one communication unit maintains a connection; and

adjusting a transmission condition of the wireless transceiver of said one communication unit in accordance with said monitored communication state and with an application activated in relation to the connection of said one communication unit or device data of another information processing device with which said first information processing device is communicating.

Claim 54 (Currently Amended): The program according to Claim 53 wherein the communication state of said one communication unit to be monitored is at least one of transmission power of the wireless transceiver of said one communication unit ~~and/or~~ and a signal state of a RF signal as received at the wireless transceiver of said one communication unit.

Claim 55 (Original): The program according to Claim 53 wherein said program causes said processor to perform a further step of causing said another information processing device to adjust a transmission state of a transceiver of a communication unit of said another information

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processing device when the transmission condition of the transceiver of said one communication unit is adjusted.

Claim 56 (Original): The program according to Claim 53 wherein the communication state of said one communication unit to be monitored is a signal state of a RF signal transmitted from the wireless transceiver of said one communication unit as received at said another information processing device.

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Claim 57 (Original): The program according to Claim 53 wherein said device data is transmitted on a RF signal from a wireless transceiver of a communication unit of said another information processing device to the wireless transceiver of said one communication unit and is supplied to said processor from said one communication unit.

Claim 58 (Currently Amended): The program according to Claim 53 wherein said one communication unit performs a communication procedure according to the Bluetooth protocol ~~re~~ or a wireless LAN protocol.

Claim 59 (Original): The program according to Claim 53 wherein said transmission condition to be adjusted is transmission power, a transmitter amplifier gain, an amount of attenuation provided by an attenuator, an antenna gain or an antenna direction.
